

GEOLOGICAL FIELD BOOK.

COLUMBIA UNIVERSITY.

E.O. Hovey,

American Museum  
of Natural History,  
New York City,  
U.S.A.

Roll 44-1 - Ekblaw + Hunt in  
cabin of Cluett 8 II. 16 Flash

44-2 Ekblaw + Hovey - do

44-3-22.III.16 Captain Pickels  
feeding some dogs. P. S. B.

44-4-22.III.16 Schooner  
from the south

44-5- Tah-ti'ag and his  
dogs beside the "Cluett" on his  
arrival from the south 1/4/16

44-6 - Parker Snow Bay  
Baulina + Evik 2/4/16

J. N. 12.20 - 1/2°  
B

1  
5 April, 1916. The "big gulch" two miles west of the schooner originated in the corrosion and erosion of a massive dike of diabase (?) which cuts the pink gneiss vertically and trends essentially N.-S. The dike is about 125 feet wide as exposed in the bay shore cliffs. Specs. 651 + 652 (dupl.) were taken about 25 feet from western contact. The basic dike is crossed at right angles by 4"-12" dike of light gray rock containing much biotite. Specs. 653, 654 (dupl.) + 655 (choir.) contact with the diabase.

5 April. Spec. 656. Eskimo skull - gift of H.C. Pickels

15 April 1916. Height of Cairn Mt., being the peak on which Mr. Ekblaw and Captain Pickels built a cairn of rocks on or about 12 Feb. 1916. It is the highest point within sight from the vessel and rises beside the big glacier ("Cluett", earlier "Comer" glacier) and between that and the double-ended glacier ("Comer", earlier "Cluett" glacier) on the south.

Dr. H. J. Hunt started from ship at 10:45 with my barometer <sup>aneroid</sup> reading +700 ft or 30.20+ inches + thermom. + 1° and ship's aneroid reading 29.90" - See next page for table

15 April, 1916

3020  
27.75  
2.45

Time	Ship's aneroid	Museum	Temp (ship)
10:45 A.M.	29.90" $\pm$	700' <sup>20 ft</sup> (30.20") +1° $\pm$	
11:15	29.90	14. J. H.	
11:45	29.90	1600' 29.225 (22.1) +3	
12:15	29.90		
12:45	29.92	3000' + 27.75 +6°	
1:15	29.92		
1:45	29.92		+7°
2:15	29.925		
2:25		750' 30.15	

This gives elevation as being 2300 feet above the sea. (0.225' as av. of up + down readings)  
Top of glacier (if Hunt as we see it fr. ship) 900 feet  
Advance guesses were

Captain Pickels	- 1200 ft
Dr. Hunt	1175
Mark Davis	1250
Norman	1500
Chief Cotton	1100
E.O. Hovey	2000

Dr. Hunt reports some E. wind on the summit - Very keen. Temperature seemed 5°, at least, colder than when he left ship.

20 April. Crag abreast of schooner.

I started about 2:15 p.m., clear, cloudless sky and moderate westerly breeze with temp. about  $+12^{\circ}\text{F}$  for top of crag via big gully east of the igloo.

Aneroid reading 2:20	sea level	100'	<u>810'</u>
3 p.	east knoll above igloo	825'	725'
3:15 p.	highest point of crag	885'	785'
4 p.	sea level	75'	810'

Average of up + down 797.5'

$\therefore$  call altitude 800 feet.

Ledges of gray banded gneiss are exposed in upper part of gully up which I went. Much hornblende. Squeezed band of highly serpentinized rock is evidently strongly metamorphosed dike. Red and pink loose fragments are not quartzite but weathered gneiss.

✓ 13 April. 46-1; 8-04 Pudlak and Kashingwa packing kamatiks beside meat cairn near igloo.

✓ 46-2; 8-04 Pudlak's igloo with himself and family standing at the entrance.

✓ 46-3; 8-02 Kashingwa starting from ice port

✓ 46-4; 8-02 Kashingwa and Pudlak starting from ship at 12:40 p.m.

16 April - 46-5; 8-04 E.O.H. in full  
costume for walking in cold weather, when  
calm or moderately windy. Journal Greenland  
III, p. 101.

46-6; 8-04. E.O.H. in full costume for  
cold weather sledging. III, p. 101.

22 April - 47-1; 8-02 Ridges and furrows  
on surface of big ("Cluett") glacier at head  
of Parker Snow Bay. 900 ft. A.T. 12:45 p.m.  
Ridges are most probably result of  
wind action on winter snow, forming  
longitudinal drifts which have consoli-  
dated into ice. N.Y.

47-2; 8-04. Moat between glacier and  
eastern end of first mountain ridge  
on southern side of Cluett glacier.  
Produced by prevailing wind coming  
from mountain side during snow  
storms and snow drifting. Bottom  
of moat in its upper portion is about 1130 feet  
above sea by aneroid measurement.

24 April 47-3; 8-04 Kudlukti's  
kamatik and dogs about ready to  
start for Umanak with load of 8 bags exp.  
coal and case of milk. Fully 800 pounds.  
17 dogs - 11:15 a.m. -



47-4; 8-04. Bird Cliff west of big gulch about two miles from schooner. Shows pin-nacle, great sill of diabase in the gneiss, elevated sea-grotto about 60 feet above the bay.

47-5; 8-02. Grounded ice berg and its ice foot. North side bay about 1 mi. from ship. The ice foot shows pressure and movement.

25 April - 47-6; 8-02. Crew at work cutting ice away from about rudder -

26 April - Overland from bight (cache) near Cape Dudley Digges to mouth of big gulch. At and near cape rock is dark gray, hornblende gneiss strongly and intricately contorted - many veins of quartz and of pink feldspar. Bight is northern end of small valley crossing the point and rather deeply incising it. Probably due to corrosion of basic dike, but now filled with mass of fractured rock from the adjoining walls of gneiss, particularly on the west. At crest there is quite an area of flattish grass and moss covered earth, which evidently is very fertile. Grass grows luxuriantly and the place is a great resort of rabbits (Lares). Noted large diabase dike on plateau trending about S.E. - N.W. Frost disintegration of rock

beautifully displayed everywhere of course -  
down to fine earth. Fragments are  
~~all~~ or mostly subangular to rounded.  
Sharp angles only on masses recently  
broken from the ledges. Saw no ex-  
tractions of quartzite, all boulders seemed  
to be immediately local.

4 May - Gx 16-1 4/35 Petr. Frencken im-  
briding dog traces.

Gx 16-2 4/35 Petr. Frencken as if ar-  
riving from Cape York is - Prob n.g.

5 May Gx 16-3 4/35 Bird cliff north  
side Parker Snow Bay to show great  
sill. Cliff is about 900 ft high.  
Country rock is of such dark red  
and orange hues that it is somewhat  
unlikely that the black sill will  
be prominent in the photo.

Sill has some large boulders  
of gneiss in it. What I took for  
the last fall for the upper arm of  
an inclined V-shaped ~~sill~~ intrusion  
is either an older intrusion  
or (more likely) the hornblende  
gneiss lying on the feldspathic  
gneiss. The big diabase (?) sill cuts  
into the hornblende gneiss at

the angle of the V and separates it from an underlying projection of the feldspathic gneiss which contains in places heavy hornblende bands -

Spec <sup>657</sup> & dupl <sup>658</sup> of diabase from large fragment fallen from the sill

The sill disappears beneath the sea 25-30 yards west left of snow filled gully showing at left of photo

✓ Gx 16-4; 4/65 Small rounded iceberg near Broken Rock point. Snow drift and moat on windward (S.E.) side -

West of Broken Rock Point a horizontal dike or sill of diabase 100± ft thick is exposed in the hornblende gneiss. Projection in to gneiss shows irregularity of fissures much more altered than the big sill already mentioned

Hornblende gneiss continues to Cape Sudden Diggins. Its boundary with the feldspathic gneiss lies along top of Bird Cliff.

Rocks loosened by heat will down cliff. Thunderously

Rock fragments on snow and ice  
are sinking rapidly. They form little  
pools about them. Picked a rock  
out of its nest + had a refreshing  
drink.

Yesterday dog digging snow about  
2-3 inches into the snow.

Heard birds - plover and -  
Barnswallow I suppose.

Many streamlets trickle down cliff

7 May -

✓ 9x16-5-4/75 Captain Pickets and crew of "Cluett"  
(except Charlie + Ralph?)

✓ 9x16-6-4/75 Do with Charlie + Ralph

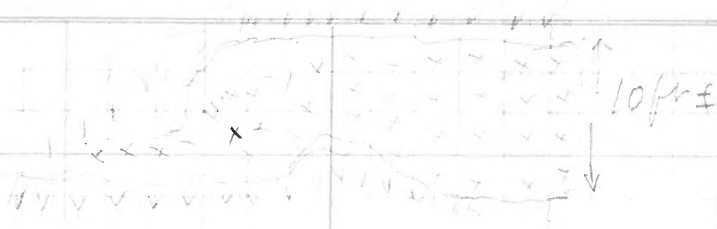
✓ 9x16-7-10 all 4/75 Men in groups of two each

7 - Capt. + mate. 8 - Norman + Chaff 9 - Ben + Taylor 10 - Ralph + <sup>Conrad</sup> Muehl

✓ 9x16-11-12 - 4/75 Crew -

N.B. Promised copies to the men -

8 May - Extremely fine grained black  
basic (diabase?) dike in the gray hornblende-  
biotite gneiss at sea level about 1/2 mile  
west of Big gulch in the Bird Cliff.  
Sends out stringers into the gneiss  
which are rich or less in thickness and  
pinch out.



659. Middle of six foot part of dike.  
The whole dike is extremely fine grained

660 - Dupe of 659

661. Stringer in the gneiss, preserving both contacts.

662. Dupe. of 661

663. Stringer in gneiss, inclosing shiver of gneiss in the diabase

664-667 Soapstone from 12-18" zone of in schist talcose <sup>micaceous</sup> schist in gneiss  $\frac{1}{2}$ - $\frac{3}{4}$  mile east of big gulch north side Parker Snow (Clyett) Bay. =  $1\frac{1}{2}$  mi from head of bay.

668. Biotite + steatite lenticule from talcose schist at Eskimo soapstone "quarry"

The Eskimo "quarry" from which

Pudlak and others have gotten soapstone from which to make lamp-stoves and pots is about 20 feet above sea level in the face of the gneiss cliff about  $1\frac{1}{2}$  mile from the head of Parker Snow (Clement) Bay, north side. The belt of steatite of fairly good quality is 12-18" thick and trends  $190-195^\circ$  magnetic ( $= E 10^\circ-15^\circ S$ ) [but perhaps variation is greater than  $90^\circ$  here or some local cause affects compass, for this reading seems to be too great by twenty degrees] Dip  $70-85^\circ N$ .

Zone of serpentized or talcose biotite schist is 6 to 10 or more feet wide in hornblende-biotite gneiss. Outcrop of the zone can be traced 200 yards or more in face of cliff rising toward east.

Spec. 69 - Pudlak's pyrite fire ball. Gift of Melrose Cotton

14 May. Gx 17-1 - Alakutziak (= Alacotiah) beside his kamatik on wh. is lashed a kayak.

(Inuk)

17-2 - Missionary and wife loading their kamatik. He is moving from Kiatak to the vicinity of Cape York

17-  
 Gx. 3. Sigdlu and Mere beside Kamatik

17-4 Egingwah + Sigdlu beside <sup>latter's</sup> ~~former's~~ Kamatik just before he started for Cape York.

16 May. ✓ Gx 17-5, 4/75 Lower (western) end of big (Cluett) glacier from top of large gneiss erratic about  $3/4$  mi. distant. Shows ~~ice~~ vertical ice front flanked by the incurving ends of the two main lateral moraines

✓ 17-6 4/65 Vertical ice front of Cluett glacier from point on outwash about 200 yards away. Shows curved and overturned and folded ice-and-dirt bands at right and nearly straight bands in center of field. In lower one-third of the vertical face a band of dirt varying from 6" to 24" or 30" in thickness is prominent, the wash from it soiling the edges of the ~~de~~ adjacent ice layers. Debris consists of abundant fine gray sand and mud containing great numbers of boulders of gray and red gneiss. In the lower left hand corner of the view are three or four large blocks of ice-and-dirt which fell last winter from the vertical ice front. Stones constantly loosen and roll down from the thick layer of dirt making a great noise in the Arctic stillness which is

disturbed only by the purling of the stream  
of water flowing from the glacier.

Many icicles should show in the photo,  
but the beautiful screen composed of thousands  
of them which characterized the face a  
month ago has largely disappeared.

Gx 17.8  $\frac{4}{50}$  Close view (50 ft) of a part  
of the ice front of the "Cluett" glacier showing  
overturned folds and sigmoid flexures in  
the layers composing the glacier.

Gx 17.9  $\frac{4}{50}$  & 10  $\frac{4}{35}$  Ooquiah, wife and  
two children standing beside Erik's tupic  
on the beach at the head of the bay.

17 May Gx 17.11  $\frac{4}{35}$  + 12  $\frac{4}{50}$  Atengana  
seated on her sleeping furs on the beach  
sewing on some mittens.

Spec. 670. Atengana's stone for rubbing  
skins. It is a prismatic fragment of trap  
rock, which she thought would interest  
me on account of the marks in one end  
which <sup>she</sup> compared to bundles of sinew.

25 May. Gx 18, 1-6 all  $\frac{4}{25}$  Overcast sky + foggy -  
1/2 E.O.H. in full costume for cold weather walking,  
when calm or moderately windy.

2. Do. using netshe hood à la Eskimos.



✓ 3. E.O.H. in full regalia for cold <sup>rest or windy</sup> weather kamatik riding as passenger, including caribou skin muffs and fox tail face protector. (Cf. Greenland Journal III p. 108.)

4. Failure

✓ 5. E.O.H. in sledging costume as worn usually by Eskimo, i.e. without outside kamikputes. (But Ishd. have worn seal skin instead of bear skin mittens)

✓ 6. E.O.H. dressed as passenger for kamatik riding in ordinarily cold weather.

27 May. ✓ Two reels with the Sennemann motion picture camera of little auks flying, perching and billing and cooing like doves on the talus slope and cliff near the new coal cache about 200 yards from "The Chert"

2 June. Spec. 671. Beach pebble of gneiss cut by basic dike. Pretty faulted. Head of Parker Snow Bay.

5 June - 18, 7  $\frac{1}{2}$  5; 8,  $\frac{1}{50}$ ; 9,  $\frac{1}{50}$ ; 10,  $\frac{1}{25}$  Captain Pickels in his furs - 7+8, hood back; 9+10 hood on -

✓ 18-11  $\frac{1}{35}$  Loading a cask of water on to the Chert

✓ 18-12  $\frac{1}{90}$  Head of bay and Chert (northward) glacier from beside the vessel.

✓ 19-1  $\frac{1}{35}$ . 6-11. Loading water on to Chert.

6.VI. Spec. 672. Beach pebble of augen gneiss from elevated beach at head of bay near igloo.

8.VI-19-2 8/75 Parker Snow Bay looking W from "Clement". Effects of a June snow storm

19-3 8/75 Do. looking E.N.E.

19-4 8/90 Do " S.W.

11.VI. Spec. 673. Basic dike (hornblende) in gneiss. Talus slope at Inugissok (Igffissok) Parker Snow Bay, Greenland

674. Do. To be cemented to 673

The amount of more or less schistose (i.e. very strongly sheared) augen gneiss in large and small blocks on the upper plateau is large. These seem to be erratics. Where is ledge?

13.VI 9x19-5 8/35 and 6 to 10 all 8/65. Bright sunlight about 2 p.m. EO it in film, re-  
peating 18-1-6 to secure better negs. 8-double ex  
N.B. Chief Cotton snapped the camera & I  
promised him a print of the full costume.

14.VI 9x19-11 ~~11~~ 8/295 Little dunks on talus  
slope above point where lumber was piled

✓ 19-12  $\frac{8}{295}$  Cliffs and little auks above same point.

✓ 20-1  $\frac{8}{90}$  Do.

✓ 20-2  $\frac{8}{90}$  Head of bay & hematale glacier. "Clust"  
in foreground at right. Some little auks shld. show.  
✓ From cliff pinnacle ca 200 ft. above lumber point.

✓ 20-3  $\frac{8}{295}$  Little auks perched } Takes slope directly  
✓ 20-4  $\frac{8}{295}$  Do. flying } abreast of the vessel.

✓ 16.VI. Gx. 20. 5-12 ~~at 74~~  $\frac{8}{50}$ ; 6,  $\frac{8}{90}$ ; 7,  $\frac{8}{75}$ ;  
 $\frac{8}{85}$ ; 9,  $\frac{8}{65}$ ; 10,  $\frac{8}{65}$ ; 11,  $\frac{8}{65}$ ; 12,  $\frac{8}{65}$

Series of E.O. 26. in fur costume. Taken  
by chief because the preceding set were not sharp.  
✓ 5- } Netcha, seal skin mittens, bear skin pants, kamiks, cap  
✓ 6- }

✓ 7 & 8 - Do. but wearing hood Eskimo style

✓ 9 - Kooltah (hood back) bear skin mittens, bear skin  
pants, maulsaks, kamiks

✓ 10 - Do. (hood forward) seal skin mittens &c

✓ 11 - Do. bear skin mittens

✓ 12 - Kooltah, bear skin mittens, bear skin pants, ka-  
mikpukks, muff & face protector. maulsaks

✓ 17.VI. Gx 21-1 & 2  $\frac{8}{50}$  Ben, Child & Charles  
preparing little auk on deck for feeding

✓ 21-3 + 4  $\frac{8}{550}$ , 5 + 6  $\frac{8}{1000}$  Flying little auks  
✓ 7 + 8 } in gulch S. of 1400

✓ 675 - Beach pebble. Igfissok (Mugvisok)  
Parker Snow Bay - Augu greiss  
(Schistose)

21. VI. 21. 9+10 - 8/15+30 sec. Cabin stove.

Spec. 676 & 677 Quartzite from ledge north side Cluett Glacier (the big one) about 2 mi. from schooner. The fragments were taken from loose blocks, but the ledge is there and shows dip of  $30^{\circ}$  to  $35^{\circ}$  N. (a guess). The quartzite overlies and perhaps is intercalated with a highly fissile mica or hydro mica schist. It also overlies the gneisses.

24 June. Temp in shadow of meat rack at Pond 1 - later lagoon at 12:40 p.m.  $43^{\circ}$  F [in sun  $47^{\circ}$ ]  
Barometer set on level at 12:30

1:30 p.m. 225' up on face of cliff west side of first S gulch from lagoon in my own shadow  $42^{\circ}$  [in sun  $44^{\circ}$  to  $50^{\circ}$ ]  
acc. to lat. & lon. =  $42^{\circ}$  N. bed of ice or against the dark object.

Alt. up this far is gneiss - mostly  
+ micaceous with bands of hornblende + biotite and strong veins of quartz

2:05 p.m. 350' A.T. in shade S. side gneiss  $40^{\circ}$   
Gneiss is very schistose here. Contains epidotized bands + quartz lenses.  
Dips always N.  $35^{\circ}$  -  $40^{\circ}$ . Slope covered with shale.  
At 450' sericitized quartzite (?) con-  
formable dip. Spec 678

(150-200 yds distant)

17

Next northern knoll, overlooking the lake of course, is a banded rock but a <sup>↑</sup>blastomylonite with much mica in it. 679

Climbed 30-40 yds here + then collected. Sp. 680 - Micaceous quartzite with small banded dolos. 575' A.T.

If these be really quartzite the Huronian is to be seen in the top of this cliff east of igloo at base of knoll. <sup>or at any rate appeared</sup>

Loose blocks of micaceous quartzite lie on top of the eastern knoll (forming west side of gulch) at brow of cliff 700' A.T. I walked along brow + then bounding northward <sup>west</sup> near head of gulch directly above Puddler's igloo. <sup>or at any rate appeared</sup> The high point in which cairn was built ~~on the~~ <sup>the</sup> ~~point~~ which seems to be of Huronian. 3:30 p.m. Base of cairn 760' A.T. Cairn measures 7'3" high on east side.

28 June. Climbed shallow gulch and face of cliff 200-300 yds east of Puddler's igloo and found Huronian quartzite and schists forming upper 200 feet of the bluff.

Is there a fault between this knoll and the cairn cliff, traversing and causing the larger gulch directly above the igloo?

5 July Went ashore with Captain Comer

He took photos of old tuff site, ~~Photo~~  
of Erik's igloo from SE and the oldest  
igloo here. This is on the edge of the shore  
cliff near Paddack's and has been  
one-third to one-half cut away by the  
slipping off of the gravel + pebble cliff  
which is 15-20 ft high, with rock base.  
Recent erosion may have been done by  
the tidal wave which swept them  
inshore according to local report by Peter  
Frenchen + the Eskimos in spring  
of 1912. Strongly felt at Saunders Is.  
Photo for S.E.

Went up face of cliff by means of  
gully  $\frac{1}{3}$  mi west of ship. Saw no  
quartzite in talus or in place  
but on plateau at head of gully +  
for  $\frac{1}{2}$  mi W saw many loose angular  
blocks of gray + yellowish gray  
quartzite. Apparently not from  
source. No areas of known  
schist near brink of cliffs. Mostly  
debris + blocks + boulders of gneiss. Went  
westward along edge of plateau to  
border of Hornum's field. Nothing  
but gneiss in angular + rounded  
blocks + some hornblende  
surprising amount of sandy  
soil on plateau

North Star Bay (19  
✓ 1-12 8/90  
X-22- Tringa canutus nest, clutch  
[22.2+11  
beaks] + young - taken by W. E. Sklar  
8/90.

X 23-1-7 Tringa canutus by W. E. S.  
(1+2 beaks)

114.VII 8-10 8/25 Tringa Baiodi young.  
posed by W. E. S. near home  
at North Star Bay, taken by both

114.VII 11-8/75 C.L. Exped. quarters at  
North Star Bay East

112 8/65 Beach embankment form-  
ed of shingles by pressure from ice  
foot. Rasmussen's station "Thule"  
in the background East

N.B. 23-7+8 may be transposed  
on acct of some uncertainty in handling.

15-VII. 24-1+2 Dog caught by tide

15-VII. 24-1 8/75 C.L. House (Hendrick's)  
at Thule

115.VII 24-3. 8/25 Habitat of snow bunting.  
7 h.m.

124.4 8/25 11 p.m. Umanak Butte fr. m. house.

116.VII. 24.5 8/75 Umanak Butte fr. m. house 10 a.m.

- 6- 8/35 Snow bunting habitat, general.

- 7 8/50 Do. with bird itself on rock

- 8 8/25 Entrance to snow bunting's nest (6 ft)

- 9 8/25 " " " " (6 ft)

- 10 8/20 " " " " (4 ft)

24 ✓

17.VII 11-8/10 Entrance to snow-bunting  
nest, with male about to feed the young

✓ 25-1, 2, 3

24-12, ~~13, 14, 15~~ all 8/10 Young snow bunt-  
ings in the nest

25-4-8/10 Banding a young snow bunting #12, 219.

25-5-8/10 Eider duck nest with three  
eggs: Islet near the Eskimotupies.

25-6-8/20 Do.

25-7-8/50 Umanak Butte from the islet  
to show buttresses of Huronian beds under  
the diabase cap.

25-8-8/10 Tern's nest on islet

18.VII 25-9 8/25 Astrup's monument from  
N.E., near river

25-10-8/50 Do fr S.E. more distant river

25-11 8/65 Thule Station headquarters  
Peter Freuchen on piazza

25-12 8/65 Lange Koch, W.E. Skoflan  
+ dogs in front of Thule house.



19.VII By W.S.S. ✓ 26-1 Nest of Oldsquaw  
near view

26-2 Do. but further off.

26-3 Young Lapland longspur.

✓ 26-4 Nest + eggs of loon - near view

✓ 26-5 Site of nest of loon

✓ 26-6 Do at right angles to No 5

✓ 26-7 Knot of two young.

✓ 26-8 Do

✓ 26-9 Wind blown silt in stream valley.

✓ 26-10 Cassiope association on  
glacial dune.

✓ 26-11 8/35 Naviana, Alna<sup>2</sup>loongwa  
and Inua<sup>3</sup>at<sup>1</sup> beside house.

✓ 26-12 8/65 Do. but lighter struck.

N.B. The girls were just starting to  
climb the Umanak, Naviana carry-  
ing her 9-day old baby in her hood.  
Later They did not go up the butte.

All angles but varying times of exp.

8/65

20. VII. 27-1. Group of igloos at Umanak,  
North Star Bay. Roostenholme Sound.

27-2 8/50 One of the igloos at Umanak, ~~A.S.B.~~  
(Egingwaq + Alualoovua's)

27-3 8/50 Excavation in refuse heap near  
old igloo Umanak, ~~A.S.B.~~

27-4 8/50 Two old Eskimo graves at Umanak, ~~A.S.B.~~

27-5 8/25 Near view of clump of poppies  
on shingle flats, North Star Bay.

27-6 8/50 Tupics at Umanak, ~~A.S.B.~~ - 5:45 P.

27-7 8/35 Pond and tupics at Umanak,  
~~A.S.B.~~ with patches of cotton grass  
(Eriophorum Scheuchzeri) in foreground.

27-8 8/35 Inuasok<sup>ho</sup> washing a netscha in a  
pond at Umanak, ~~A.S.B.~~ 6 p.m.

27-9 8/35 Inuasok<sup>ho</sup> and Alualoovua<sup>1</sup>  
(Harrigan's) + South Greenland child standing in front of  
Egingwa Badu's Tupic. 6 p.m.

EWIK'S +

21. VII. 27-10 8/35 Patches of Eriophorum Scheuch-  
zeri with pond + tupics in background 10a.  
looking N.W. - Umanak

27-11 8/50 General view of pond near  
South side

tupies at Umanak, looking S.W., to show three plant zones on border: Eriophorum Schenckii on bank, Ranunculus hyperboreus floating on the water and Hippuris vulgaris submerged with tops of stalks showing.

27.12 16/10 Eriophorum Schenckii, close view of a small clump.

Spec. 681 Diabase from the large surface of ledge rock exposed near our house.

See p. 26

✓ 31.8/11 - 28-1 (graphic)  $64/5$  Quadrant of tupies near igloos at Umanak.

✓ 28-2  $8/25$  - Do

✓ 28-3  $64/5$  - Looking WSW from Umanak - Edge of Umanak Butte, Narsarsuaq Is.; Saunders Is with 3 igloos in foreground. Salsapulella Early's Inukitoks & another.

✓ 28-4  $32/5$  Quadrant of Ranunculus near igloos Umanak

✓ 28-5 -  $8/25$  - Do

✓ 28-6  $32/5$  Diabase boulder on ledge at Umanak - split by frost?

✓ 28-7  $3\frac{2}{5}$  Pond at Umanak to show  
Pleuroprogon Sabinei, looking N. 2

28-8  $12\frac{3}{5}$  Do in attempt to get the  
background of Nostenholme Sound  
Rasmussen Glacier straight.

✓ VIII. 28-9  $3\frac{2}{5}$  (Overcast) Our sleeping tent  
28-10  $3\frac{2}{5}$  First split boulder

3. VIII 28-11 + 12 W.A. 32. Time } N.S.B. looking W.

✓ 29-1 DO. } + including whole bay

✓ 29-2 W.A. 32. Time. North Star Bay looking  
S.W. including P. Frenchen's house  
but not quite all of the bay.

✓ 29-3 -  $6\frac{1}{2}$ "  $3\frac{2}{5}$  } Panorama N.S.B.  $\frac{N}{W}$   $\frac{1}{2}$

✓ 29-4 " " } " " S.E.  $\frac{1}{2}$

Be sure to send K. Rasmussen prints  
from these photos. of N.S.B. free from  
ice. Also send him one of the W.A. negs.

Soil flow is well shown all over the  
sloping plain east and S.W. of Frenchen's  
house and the "earth glaciers" vary in  
height at their lower ends from 1 to 4 feet.  
The latter, which reach the edge of the bay,  
are 50 to 100 feet long. Stream trench-  
ing is here with raised banks or dikes  
well developed as a result of frost action

- (6. ~~VIII~~ <sup>✓</sup> 28.10.  $3\frac{1}{5}$  <sup>NSB</sup> Umanak. Frost-split block  
 of quartzite on the plain.
- ✓ 29.5  $3\frac{1}{5}$  <sup>NSB</sup> Umanak. Frost split block  
 of slaty rock (diabase?) on the plain
- ✓ 29.6  $3\frac{1}{5}$  <sup>NSB</sup> Umanak. Tilted stones and  
 raised dike like side (down hill side)  
 of furrow formed over subsoil  
 drainage channel.
- ✓ 29.7  $\frac{8}{25}$  Thule view from in front of our  
 house, west half North Star Bay  $7\frac{1}{2}$  m
- ✓ 29.8  $\frac{8}{25}$  Do. east half
- ✓ 29.9  $\frac{4}{25}$  8 p. Umanak. Flitch of narwhal  
 meat drying on diabase cliff near  
 igloos. Taken from canoe.
- ✓ 29.10  $\frac{8}{25}$  8 p.m. Umanak. Igloos from  
 off shore in canoe. Erik + Pauline  
 are standing in front of one. Shows  
 G.C.'s diggings at the left.
- ✓ 7. ~~VIII~~ - 29.11.  $\frac{6}{5}$  Umanak Rock (diabase)  
 shore near igloos to show rounding  
 effect of frost action below high tide  
 mark.
- ✓ 29.12  $\frac{6}{5}$  Do 30 yds N of preceding.

29. VII (Written 7. VIII) Went with Ek across the plain and part way up the Umanak. He called my attention to the dike-like embankments along one side - usually, if not always, the down hill side - of the furrows running over the subsoil drainage lines. Probably connected with freezing and thawing above the ice table. The subsoil drainage seems to follow cracks produced by shrinkage at and below the level of the ice table. Flat stones stand on edge and usually are arranged lengthwise of the furrows. Phenomenon of the unequal removal of under soil.

Spec 682 + 683 are slabs of Huronian shale showing fossil mud cracks.

Spec 684 ~~Natrolite~~(?) Aragonite (?) filling of crevice in the Huronian. Much of this material is scattered in fragments over talus slopes and plain.

8 August. Visited top of Umanak Butte with Ekblaw, Dr. Hunt accompanying us to the base of the vertical, 60 foot cliff formed by the edge of the diabase cap of the butte. Buttresses of Huronian

slates, shales and quartzite at about 550 ft. above the sea (aneroid). These dip gently toward the west or south of west, and this is the highest exposure of them in the hill, <sup>their</sup> upper limit above the slope topping the butresses and at the lower contact with the diabase being about 600 feet above tide. Where we scaled the cliff the diabase sill is about 60 feet thick. This seems to be its thinnest part. The upper surface of the plateau is roughly oval in outline, with its longer diameter running approximately E.-W. for about 300 meters. The surface of the plateau is gently undulating in contour and its highest part is about 710 feet above the sea. Its general slope is slightly toward the W.S.W. The sill of diabase thickens toward the west and <sup>is</sup> not less than 100 feet <sup>thick</sup> at the western end of the butte, where the diabase rests on massive butresses of the sedimentaries. The effects of chemical weathering and mechanical disintegration are prominent in every direction, - oxidation with and without hydration, flaking and rounding of corners and edges, polygonal cracking on vertical as well as horizontal surfaces, sand and gravel, "desert varnish", carving by wind and wind blown sand (and snow?) Induration of the surface rock is particularly shown along

crevices. In many places on the plateau these crevices are marked by a wall 2 to 4 inches wide and 1 to 2 or even 3 inches high, extending in straight or nearly straight lines for several or many yards.

Ek's photos - Exposure 2+3  $\frac{8}{10}$  A pillar of disintegrating rock shaped like the bust of a woman. Etp 4  $\frac{1}{50}$  Escarpment at western end of the Umanak.

Spec. 685. Fine-grained diabase from <sup>very</sup> near <sup>contact</sup> base of escarpment eastern end of Umanak Butte showing development of magnetite crystals by fumarole action along crevice. 600' A.T.

Spec. 686. Diabase from about 2 feet from ~~base~~ contact at base of escarpment eastern end of Umanak Butte. One face shows groups of small pyrite xls and epidote(?) on old fissure surface. 600' A.T.

Spec. 687 Diabase from about 2 ft. from contact at base of escarpment eastern end of Umanak Butte. Duplicate 600' A.T.

Spec. 688 Diabase. Coarse grained. Eastern end Umanak Butte. 600' A.T.  
Lower part of sill

11.VIII. 30-1  $\frac{8}{65}$  Umanak. View up (N.E.)  
Wostenholme Sound to show ice &



berap in the fjord. Egggruvak's + Egggruvak's  
with badris turpines in foreground.

30.2<sup>8</sup>/65 Umanak. Looking W or NW.  
across Wosterholme Sound to show  
berap. Nehutislasok's (Pangas) Tur-  
pic + pond with Flornpagon in  
foreground.

11.VIII. 1916. Went with Ekblaw to cliffs  
of Huronian sedimentaries forming  
south side of North Star Bay and  
at about one-half mile from head of  
bay collected Specs. 689, 690, 691  
of the aragonite (?) and calcite and  
aragonite (?) bands intercalated  
with the shales. In the two specs.  
(690 + 691) wh. show calcite, that  
is above the aragonite in position.  
There are many of these bands in  
a zone not less than 15 or 20 feet thick  
and they extend for long distances  
with much regularity of thickness,  
though all are thin. As shown in  
these specimens the bands  $1\frac{1}{2}$  - 2"  
thick contain partings of shale.  
None that I saw exposed here showed  
clear aragonite (?) as thick as  
spec. 684 from loose fragments on  
the Umanak Butte.

12. VIII 2 30.3  $\frac{8}{25}$  ✓ North Star Bay from  
point near house. Very cloudy.

13. VIII - 30.4  $\frac{8}{35}$  ✓ Knud Rasmussen standing  
beside his house at Thule, North Star Bay.

30.5+6 ✓  $\frac{8}{50}$  The Eskimo dog "Saint Peter"

25 Aug. Went to head of Mortenholme Sound  
in the motorboat "Niger Lis". Moltke  
Glacier (fide Rasmussen) has advanced  
greatly in past three years. Judging from  
point which he ~~pointed~~ indicated  
as its front in 1913, I should think  
to advance to be ~~more~~ more than a mile.

Low promontory near head of  
fjord, southside, is gray gneiss.  
Fine old stone igloo - all stone even  
in roof, no wood. Last occupied  
by Esk. in winter 1907-8 (or 06-07?)

15. VIII. 9c. <sup>(26X)</sup> 32.1  $\frac{40}{50}$  ✓ Fitzclarence's Rock,  
Booth Sound, from N.W. at 8<sup>15</sup> p.m.

Basalt cap on sedimentaries - a cy-  
linder standing on a regular cone.

16. VIII  
9c. 32.2  $\frac{4}{50}$  ✓ Narsak. Ca 9 a.m. - Three  
Eskimos in kayaks - Kuslutook (= Kood-look-  
to of Peary & MacMillan) Kakatiale and  
Iminak (son of Kolutingnak).

- (Artup)
- 32.3  $\frac{4}{50}$  ✓ Karsak. Inuak in kayak.
- 32.4  $\frac{8}{100}$  ✓ Karsak valley and small pied-  
mont glacier east of it. From the N.  
on the moving "Inger Lis"
- 32.5-  $\frac{8}{100}$  ✓ Northumberland Island from  
the S.E. From moving "Inger Lis".
- 32.6  $\frac{8}{100}$  ✓ Eastern part of southern coast  
of Herbert Island from S.W. From "Inger Lis".
- 32.7  $\frac{8}{50}$  ✓ Ulugset, Herbert Island. Western  
part of settlement of 11 tupics.
- 32.8  $\frac{8}{50}$  ✓ Do. Eastern part.
- 32.11  $\frac{8}{25}$  ✓ ~~At~~ Ulugset. Ariangooneq  
(Ananik's sister, Tungviki's wife) laying  
out pair of kamiks for Captain Corner  
to be made.
- 32.12  $\frac{8}{25}$  ✓ Ulugset. Group of women  
and children in front of tupic. Ivaluk  
with small baby.
- 33.1  $\frac{8}{25}$  ✓ Ulugset. Igloos in process  
of construction. Front view
- 33.2  $\frac{8}{25}$  ✓ Do. Interior.

two-family

33-3  $\frac{9}{25}$  Ulupuk. Large igloo in process  
of construction - Tongviks + Ivalluk

25. VIII - See p. 30.

29. VIII Eider Duck Island - Gray feld-  
spathic gneiss inclosing rounded masses  
of hornblende gneiss. Excellent example  
of an igneous gneiss carrying magmatic  
inclusions of an older gneiss which have  
been rounded by resorption. Highest  
point of the island is 60-75 feet above  
the sea. This and other points have been  
rounded and smoothed by the grinding  
action of the sea ice and many other  
smoothed surfaces indicate abrasion  
by the ice. The gneiss is intersected by many  
veins of pegmatite. These consist mainly  
of feldspar and some are strong - 1 to 2 ft  
across.

Dalrymple Rock. Landed on the eastern  
side. Strongly contorted gneiss of different  
aspect from that of Eider Duck Island. Pre-  
dominantly a gray feldspathic gneiss  
with numerous great veins of coarse peg-  
matite consisting principally of feldspar.  
The feldspar pegmatite breaks down  
under the action of the frost more rap-  
idly than the gneissic country rock,  
shallow trenches being formed thus.

Saw one string of magmatic inclusion of hornblende grains showing resorption edges. Three or four of the included masses formed the series. Surface of Dalrymple Rock is very jagged and broken, but the points up to a least 60 feet above the sea (as high as we climbed - on a side knoll) have been <sup>somewhat</sup> smoothed and rounded by ice action.

30 August - Western (or S.W.) point of Saunders Is. "Kunt's Harbor". Cliffs are remarkable for their verticality. Go down sheer into the water. Collected specimens of the purplish pink rock which on new view looks more like limestone than it does like the quartzite or sandstone that I have supposed it to be. Is easily scratched with knife blade. Dark gray is shale. Light gray seems more like an impure limestone or calcareous shale - specimen -

11 September - Small ornate fish see p. 43 <sup>no</sup> 900

15 September - Etah. Collected ctenophores in front of house and am trying to preserve them. Got two species of Calli-  
anina or a related genus one <sup>(common)</sup> with contract-  
ed top and tentacles six or eight times  
as long as the body, the other with  
more expanded top and much shorter  
~~than~~ tentacles. Bodies 1-1 $\frac{1}{4}$ " across.

At least two species of Beroë. One looks like a rose-pink muskmelon of all sizes up to about three inches in diam. as it floats in the bay. Seen usually to float with infundibulum up and mouth down. Lying in the tray, the shape is that of a cucumber and the largest specimens obtained measure  $4\frac{1}{2}$ ,  $4\frac{3}{8}$ , 5 inches long and  $1\frac{3}{8}$  -  $1\frac{3}{4}$  inches across. Infundibular end is rounded, oral end somewhat contracted so that the mouth is not bell shaped as in figure of Beroë forskalii of p. 211 of Textbook of Zool. vol. I. Parker & Haswell. Common. Another form, represented by one specimen, is smoke brown in color, broader in proportion to length, when compared with preceding, and mouth is more expanded.

collected one specimen of a large (7+ inches) ~~Beroë (?)~~ cucumber-shaped form which was perfectly colorless except for a dark brown lump at the infundibular end of the mass. This was more delicate than the other forms and was torn to pieces in transportation and transferred with inadequate tools.

These rose pink Beroë's are strongly phosphorescent. "Akpiasuah"

Another common coelenterate is a bell shaped animal 1-1 1/4" high by ~~1/2~~ 1/2-3/4" across. Flaring mouth with fringe. Animal is very active, swimming by contracting the body and forcing water out through the mouth. Delicate burnt orange color in body and darker in fringe. Also lots of "anik", a little pteropod (?)

17-Sept. Saw but four jellyfish today - two *Callianira* and two small *Beri*.

18 Sept. Got two medium sized (3" long) *Beri* today - Saw no more.

18 Sept. <sup>spatially</sup> Rippled marked sandstone and quartzite. Cap. gneiss, beginning about 5700 feet above the sea. Seems to have northerly dip. Strong green layer is much epidotized or chloritized, though the color suggests copper stain. Prob. chlorite.

Just above this is a zone of cherty material in an impure limestone. [That is, the rock has weathered away from the chert and is readily scratched with a knife but it does not effervesce under strong  $HNO_3$ . We have no  $HCl$ .] Differential weathering pronounced and some of the lumps look like masses of *Stromatopora*. Specimens 692 + 693.

Above Provision Point and from 100' to 150' above the sea there is a considerable area of gneiss which shows the characteristic rounding, smoothing and grooving which are due to glacial action. Motion was from north-east-parallel or nearly so to axis of fjord. Surface is now covered with black lichens, but the striation is perfectly visible.

21 Sept. Went along <sup>north</sup> ~~se~~ shore of fjord for about a mile east of headquarters.

The great pile of gravel and boulders near the foot of which the house stands looks like an accumulation of torrent debris and presents three elevated strand lines or beaches above the sea. Surface is mostly rounded and smoothed boulders some of which are 3 feet in diameter. Pink feldspathic gneiss predominates, but there are many boulders of black hornblende gneiss mingled with them. This delta fan is about a half mile broad at sea level. Mac thinks it is a glacial moraine, on account of the boulders on top, but I think that the fine material has been washed out leaving the boulders. I have not yet observed



ed stratification in the walls of the great gully cut by the present stream. This gully shows the big boulders on the surface of its bottom and has raised borders. Considerable water comes down here in the summer season.

Above a half mile east of the house we encounter the massive gneiss forming the shore for a half mile, more or less. This is a pink feldspathic rock, containing many bands of the ~~blendic~~ gneiss, the latter being intersected by countless veins of coarse feldspar and quartz, feldspar predominating. Projecting points are rounded and have been smoothed by ice action. Perhaps this can be correlated with the glacially smoothed and striated surface on Provision Point (see p. 36).

22 Sept. Advancing up the fjord the hornblendic gneiss increases in proportion and seems to be the only or predominating rock from  $1\frac{1}{2}$  miles.

23 Sept. Lx. 30.7  $\frac{8}{25}$  ✓ Glacially rounded boss of gneiss above Provision Point. About 100 ft. above the sea. Looking ca W.

23. IX. 2x 30.8 <sup>8/25</sup> ⑦ Glacially rounded, smoothed  
and striated area, of gneiss beyond and a-  
fore Provision Point. 100 ft. ± above sea  
Looking ca N. by S.

30.9 8/25 ✓ Glacial grooves. Same region.  
Near view Looking S.W.

30.10 8/25 ✓ Same as 30.8

30.11 8/25 ✓ Glacially rounded surfaces  
of gneiss above next point west of Provision  
Point. Dark hornblende gneiss.

30.12 8/25 ✓ Front of valley flow ~~solifluction~~  
of gravel and boulders - near view.  
Solifluction? Half mile west of Provision Point.

31.1 8/25 ✓ Near view of small very smooth  
surface of gneiss which, like others in the  
vicinity, has been protected in some way  
(probably by a filling of gravel) from too much  
frost action. Point west of Provision Point

31.2 8/25 ✓ Headquarters and the gravel-boulder  
bank behind it, showing three elevated  
beaches above the house beach. From  
ledge above Provision Point.

25 Sept. Climbed with Mac to top of Thermometer Hill, forming western extremity of the northern side of Foulke Fjord. My aneroid gave elevation 1025 ft., his 1000. On his ascent a week ago he got a reading of 1050 ft. Thermometer wh. he left there a week ago gave min.  $8.90^{\circ}$  max  $34^{\circ}$ .

The cap of the hill is a bed of diabase 30 to 40 feet thick. Specimens No. 694 & 695 dupe. Spec 696 was taken from bed of much decomposed diabase(?) lying below the cap and perhaps separated from it by a bed or beds of quartzite.

Upper portions of Thermometer Hill show gravel + boulder streams or flows (solifluction) in exceptional development. 50-100 feet below summit on western side there is a well marked flow of this kind which seems to be 150-200 yds long and 20-40 yds wide, descending ~~east~~ southward. The rock illustrated by spec. 696 disintegrates into bullet-like gravel scattered through ferruginous yellowish brown sand and this mixture flows down hill like a stream or glacier.

The level portion of the hill 850-900 feet above sea is a regular quicksand or quartz-mix mixture of clayey matter + quartz bits -

Kayak &  
walrus

Kanaitik showing bear and cat

Kahda fecit

4 October. 9x 31.3! 8/35 Looking out  
toward mouth of fjord from near  
house.

9x 31-4 8/35 ✓ Cove in front of house.  
Low tide, showing cakes of ice on  
partly destroyed icefoot.

7 October - Spec. 697. Quartzite peb-  
ble from terrace near house - Shows  
worm burrows(?). (and rounded)

20 Oct. - Star Island is well grooved glacially.

25 October. Mac, Jot and I visit the head of  
Itukashu and the camp in which set a  
line of stakes across Brother John's  
glacier, about one-third mile from  
lower end. Perhaps 500 ft. above the  
sea. Mac used theodolite and  
considered line to be normal to the  
axis of fjord and glacier. Stakes  
are ordinary inch gas pipe about  
3'6" long, and are sunk in auger  
holes 14 or 15 inches deep. There are 14  
of the stakes and the intervening spaces  
measure from 50 to 100 yards in length.  
Outer stakes are on brink of steep sides  
of the glacier bordering the side valleys.  
All are set in the tops of hummocks  
of solid ice. The surface of the glacier  
is extremely hummocky, there being

scarcely any level surfaces to be seen -  
There is a long narrow channel near the  
~~west~~ northern border of the glacier which  
is the bed of a considerable stream dur-  
ing the summer. Hard walking on  
the summer ice without creepers, but  
we got along fairly well when we kept  
the bottoms of our kamiks free from  
snow. I tried some hob-nailed wading  
moccasins that had been brought up with  
the idea that they would be useful in pro-  
tecting kamiks on rock work, but they  
were of little use.

Captain Comer determined the ice  
to be  $23\frac{1}{2}$  inches thick and the water  
about 12 feet deep at a distance of  
50-75 feet from the front of the glacier -  
Largest trout (salmon trout) caught to day  
measures 2' 3" long & weighs  $5\frac{3}{4}$  lbs. It was  
caught by Ahminah.

Ice cracked frequently under some  
pressure - probably both from the glacier  
and inflow of water. To be investigated.

Kahdd caught a little trout that seemed  
to have much larger fins proportionately  
than the other fish.

Spec. 698

26 October. Thawed out, wrapped in  
in cheese cloth and placed in  
75% alcohol in a 5 gal milk can

the trout caught yesterday by Kahda and four salmon trout brought back by the Eskimos from their fall Caribou hunt. These were caught in a small uncharted lake a short distance inland from Advance Bay, Greenland, in lat.  $79^{\circ}8' N.$ , just south of Humboldt Glacier. The fins have become somewhat damaged during transportation in a frozen condition, but these fish come from the most northern locality thus far reported in Greenland itself and they are preserved for identification.

25 October. Spec. 699. Fetus taken from womb of seal killed through the ice of Bancroft Bay, Greenland, on 15 October, 1916, by Akputishao. Placed in 10% formaldehyde. Transferred to 75% alcohol on 31 October.

Spec. 700. Decapod (squid or cuttle fish) collected by Accommodingwah on the beach at head of Foulke Fiord on 11 (or 10?) September and brought in by Panikpa. Placed first in 50% alcohol, later strengthened to 80% alcohol in which it now is. N. B. Full information given on 1 Nov by Neapingwah (A's son) who says these are common.

Spec. 701. *Beroë Callianassa* & see pp. 33-35 of this book.

5 Feb., 1917 - Radcliffe Island is the first and largest of the three islands forming south side of entrance to the fjord - is of heavy bleached green crystalline granitic veins. Much coarse mixed with small pebbles occurs on the island. The exposed rock ledges are well grooved and striated glacially. Movement of ice apparently from northeast. The proportion of rock exposed is less than on Starr Island. Macgill.

9 Feb. Visited Brother John's Glacier. Ice of lake proves some advance of northern portion of glacier during the winter. Ten to thirty feet in front of the glacier a ridge of lake ice has been raised roughly parallel to the front of the glacier. Where largest this ridge is approximately ten feet high, with sides sloping at  $45^\circ$ . This would indicate a crude estimate of 8 feet of forward motion in the past 100 days, or about 1 in. per day. The ice is broken at the top of the arch. It rose from the surface of the lake and left an open space. Roof is perhaps 15 inches thick. Mac tells me



that he and Ekblaw entered the open  
arch or grotto thus formed in 1915. They  
could stand upright in it. Four could  
easily have stood there then. He took photos.

Note on Perret camera - Speed 6  
seems to be about the same as  
speed 4 of Graflex  $\therefore$  aperture 4 cm  
speed 6 of Perret gives ca  $1/25$  sec. exposure  
 $712\frac{1}{2} = \text{ca } \text{U.S. } 10 ; (716 = 16) ; 18 = 20 ; (20 = 24) ;$   
 $725 = \text{ca } \text{U.S. } 39 ; (32 = 64) ; 36 = 84 ; (128 = 45)$   
 $750 = " " 160.$

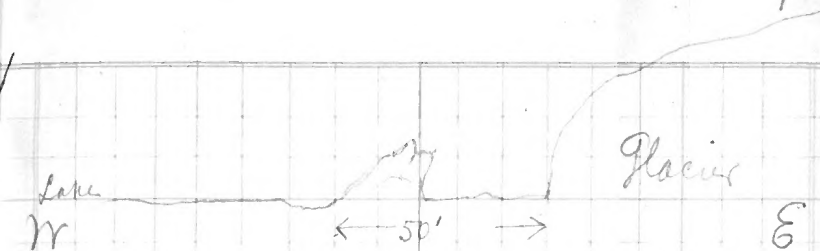
The plate exposures of  $12\frac{1}{2}/4/6 (= 10/25)$  on  
Pinker Snow Point and of  $18/4/6 (= 20/25)$  on  
Ekblaw Glacier near there on 11.IX.1915 gave  
very good results. We were only three or four  
miles distant (perhaps less) when these views  
were taken. Film exposures of same  
diaphragms and times on more distant  
mountains and ice masses a month  
previously were too great.

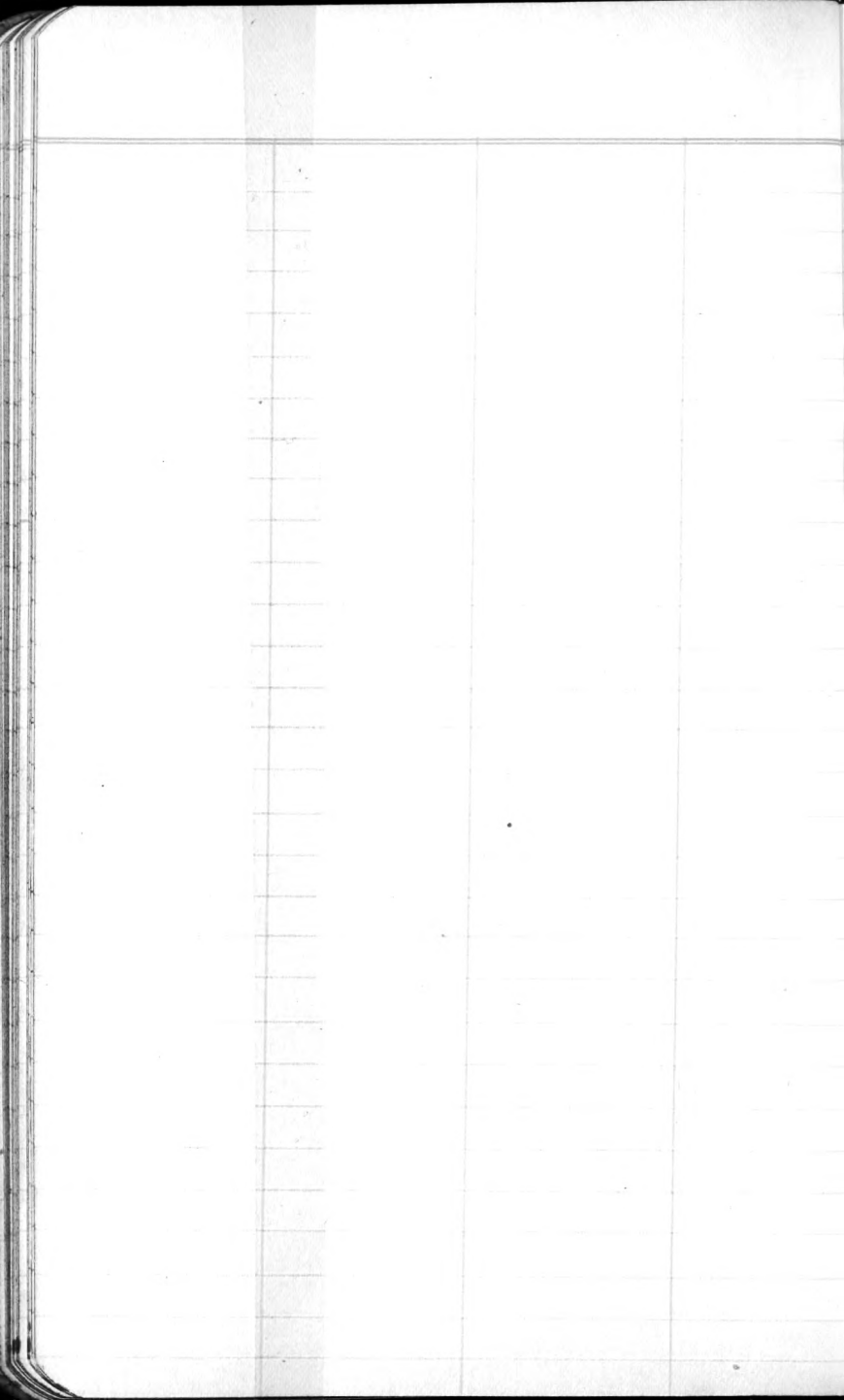
approximate table (compared with Graflex)

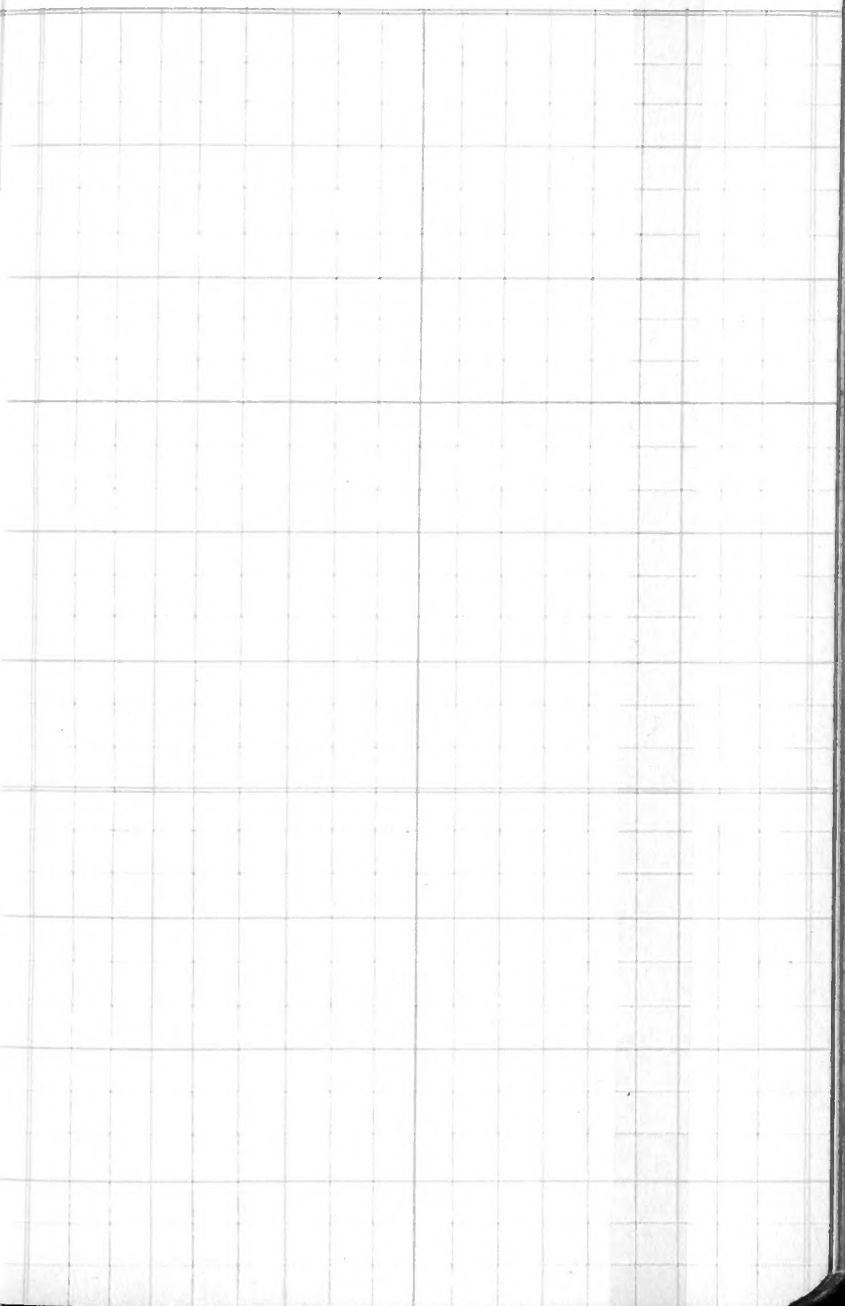
	1 cm	2 cm	4 cm
Tension 6	$1/95$	$1/75$	$1/25$
" 9	$1/295$	$1/90$	$1/35$

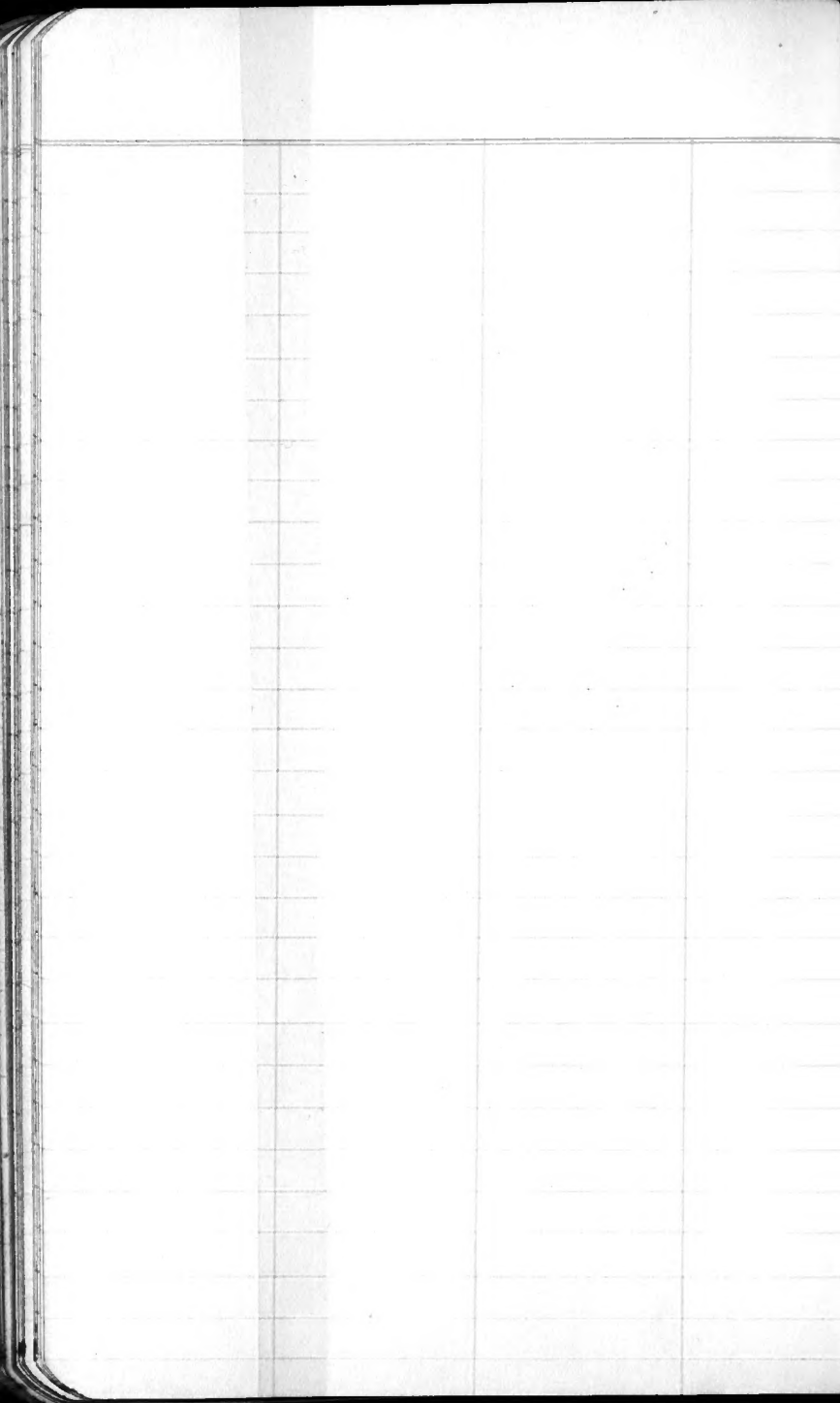
7 March Visited Brother John's glacier. Visited line of stakes but could not be sure from unaided eye observation that there has been any movement. A stake in the middle of the southern half of the line is or seems to be farther back than the others, but this may be due to original setting.

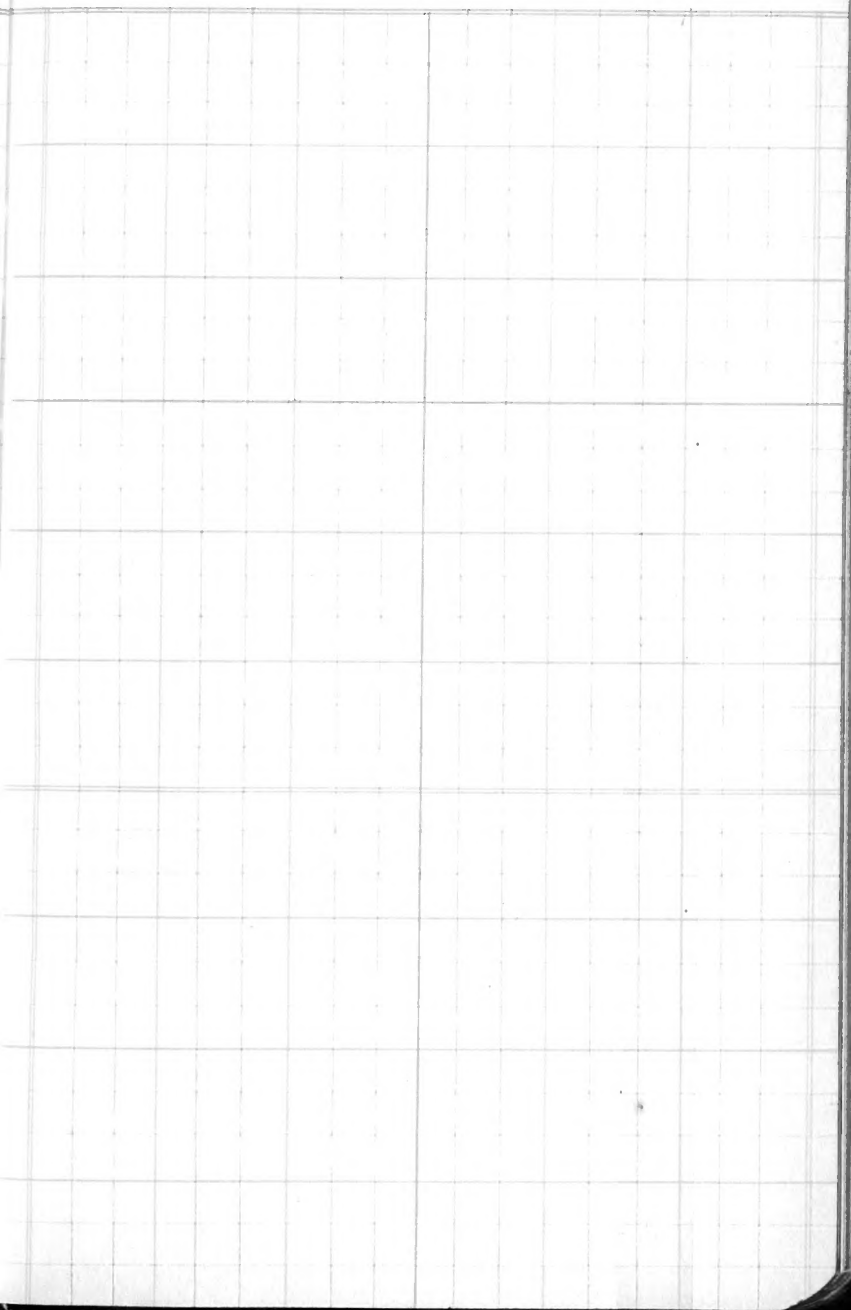
At the lake a second ridge has risen south of that noted on 11-'44. This is larger, longer and higher, the crest being 15 feet above level of lake ice in its highest part. The stoss (glacier) side of the ridge shows beautifully the direction from which the pressure came, being flexed back at top to and beyond the vertical. On the distal side of the ridge the ice has been ~~beast~~ down below the general level of the lake surface forming an open hollow 1.5-2 ft deep. A similar hollow was formed on the proximal side of the ridge, but water got in and it is now full of new ice. This ridge extends from the north to or beyond the middle of the front of the glacier. Apparently, it is the result of movement which has taken place within the last four weeks, amounting to at least 10 feet horizontally. Relations are approximately as represented in the following section —

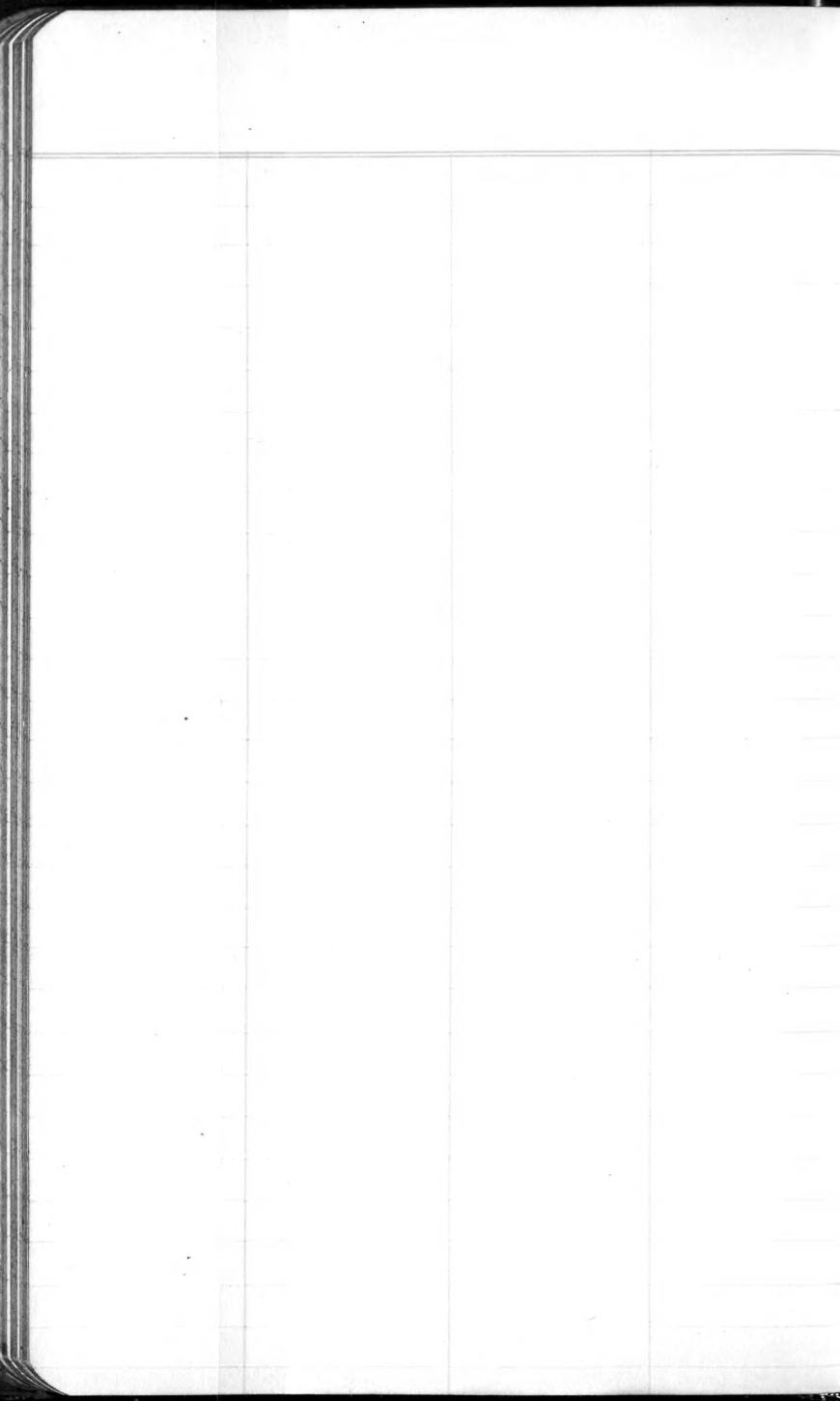




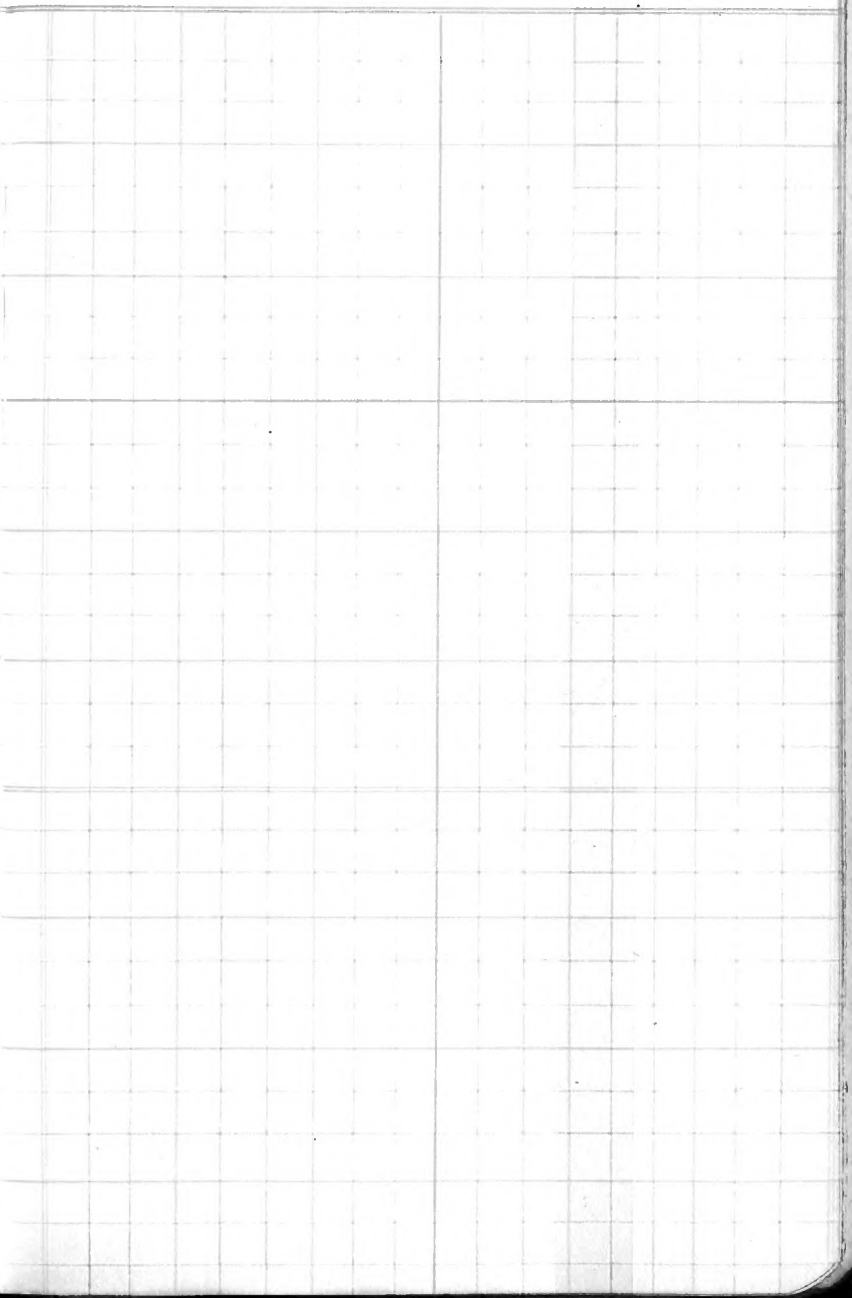






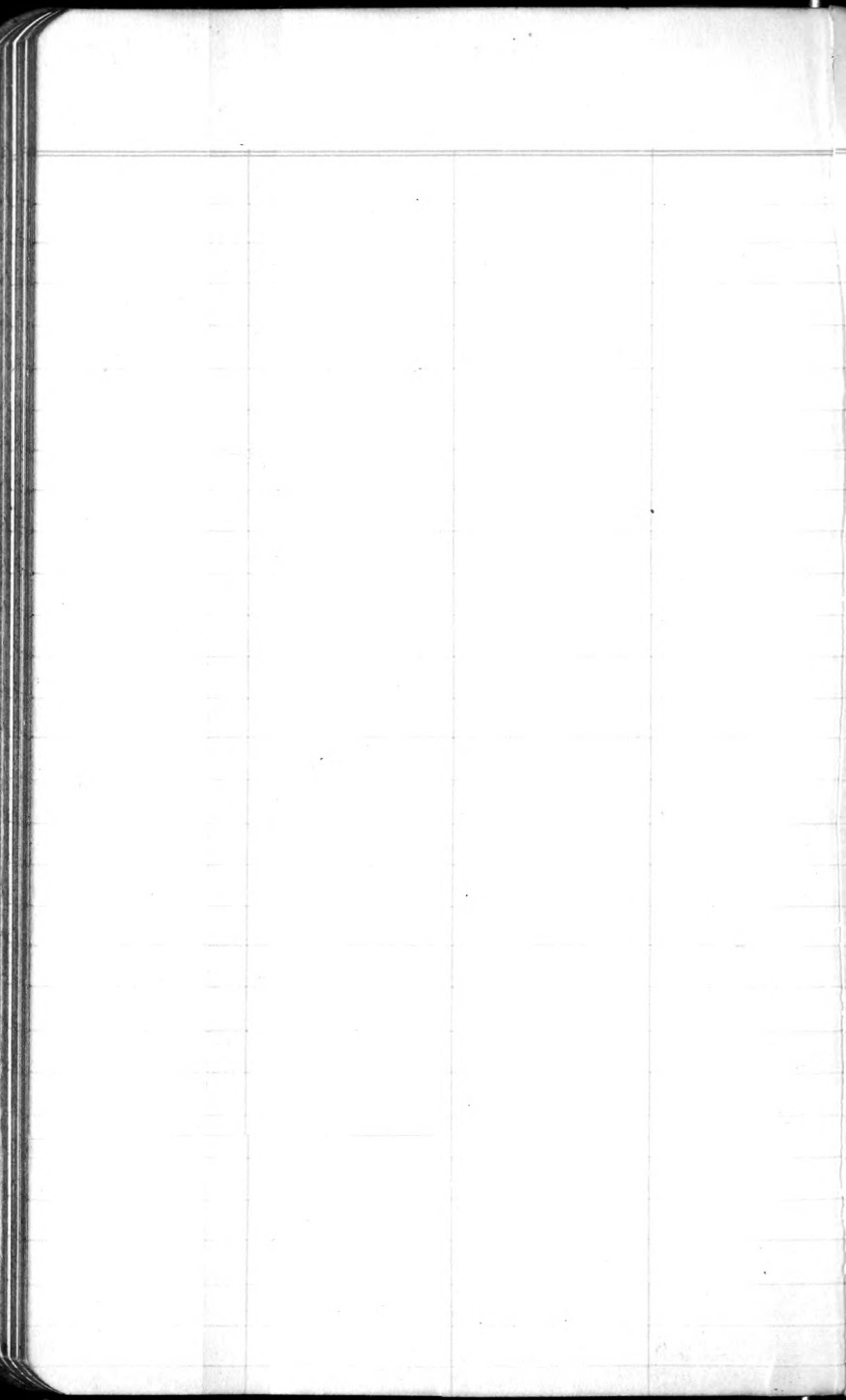








		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		



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January

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

April

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

February

	1	2	3	4	5	
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29				

May

	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

March

		1	2	3	4	
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

June

			1	2	3	
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

July

						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

August

			1	2	3	4	5
6	7	8	9	10	11	12	
13	14	15	16	17	18	19	
20	21	22	23	24	25	26	
27	28	29	30	31			

Courses across Melville Bay  
(H.C. Pickels)

Cape York to Cape Seddon

True E by S  $\frac{1}{2}$  S =  $107^\circ$  True

	Geogr. mi.		Statute mi.
Magnetic	1 <sup>st</sup> 20 miles	$197^\circ$	$22\frac{1}{2}$
	2 <sup>d</sup> 20 "	$195^\circ 30'$	$22\frac{1}{2}$
	3 <sup>d</sup> 20 "	$194^\circ$	$22\frac{1}{2}$
	4 <sup>th</sup> 20 "	$193^\circ$	$22\frac{1}{2}$
	5 <sup>th</sup> 20 "	$192^\circ$	$22\frac{1}{2}$
	6 <sup>th</sup> 20 "	$191^\circ$	$22\frac{1}{2}$
Last	10 "	$190^\circ$	$11\frac{1}{4}$

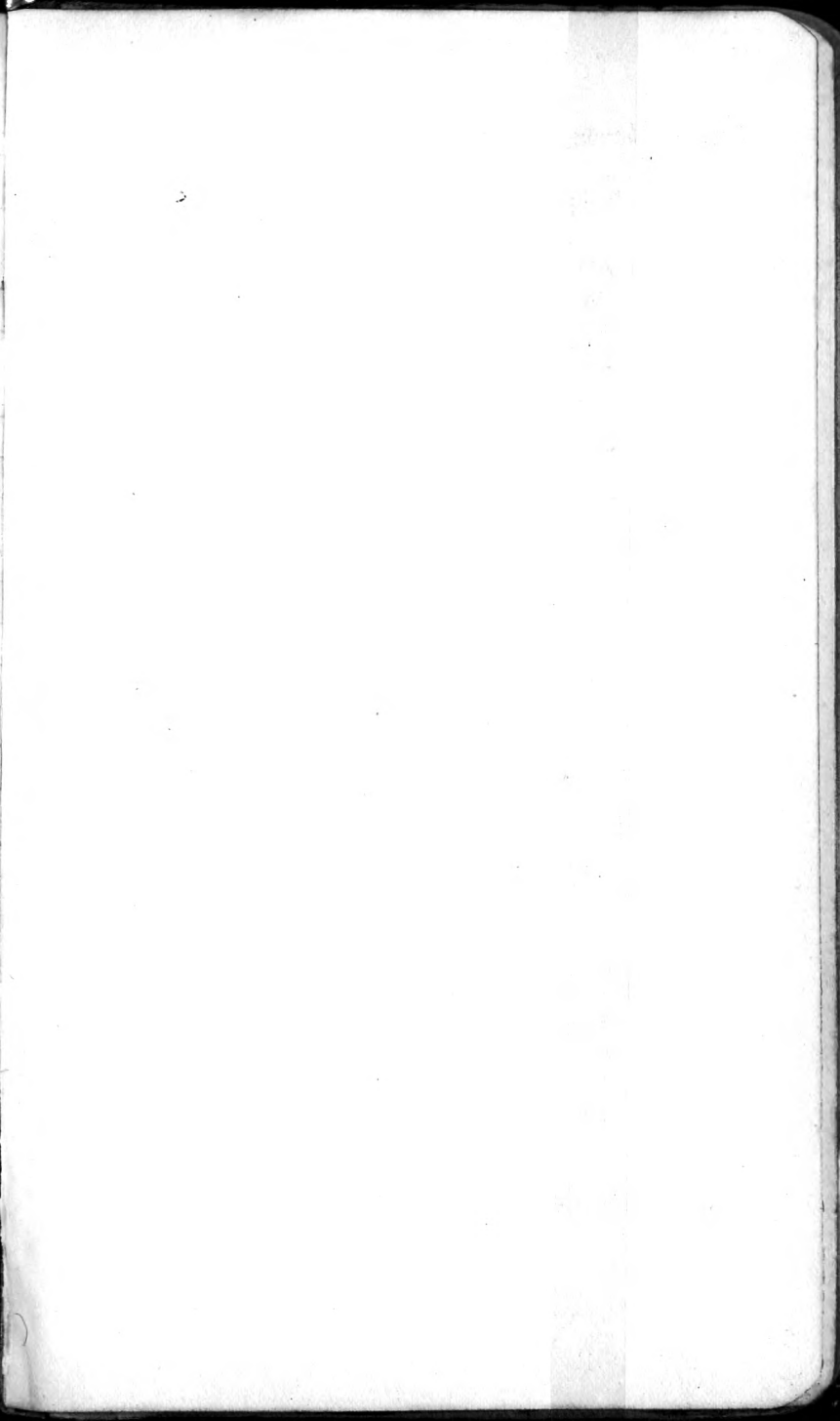
Dist. C. Y. - C. S. 130 geogr. = 150 statute mi.

Cape Melville to Cape Seddon

True S.E. by E.  $\frac{3}{4}$  E True =  $116^\circ$

	Geogr. mi.		Statute mi.
Magnetic	1 <sup>st</sup> 20 mi.	$206^\circ$	$22\frac{1}{2}$
	2 <sup>d</sup> 20 "	$204^\circ 30'$	$22\frac{1}{2}$
	3 <sup>d</sup> 20 "	$203^\circ$	$22\frac{1}{2}$
	4 <sup>th</sup> 20 "	$202^\circ$	$22\frac{1}{2}$
	5 <sup>th</sup> 20 "	$201^\circ$	$22\frac{1}{2}$
Last	5 "	$200^\circ$	6

Dist. C. M. - C. S. 105 geogr. = 121 statute mi



Courses across Melville Bay - H.C.P.

Cape York to Cape Seddon.

True =  $107^{\circ}$  = E. by S.  $\frac{1}{2}$  S.

Magnetic

1<sup>st</sup> 40 mi.  $197^{\circ}$  = 45+ statute mi.

2<sup>d</sup> 40 mi  $194^{\circ}$  45+ " "

3<sup>d</sup> 40 mi  $192^{\circ}$  45+ " "

Last 10 mi  $190^{\circ}$  11+ " "

Dist. C. Y. to C. S. 130 (150) miles.

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Cape Melville to Cape Seddon.

True =  $116^{\circ}$  = S. E. by E.  $\frac{3}{4}$  E.

Magnetic

1<sup>st</sup> 20 mi.  $206^{\circ}$  = 23 statute mi.

2<sup>nd</sup> 40 mi  $203^{\circ}$  45+ " "

3<sup>d</sup> 40 mi  $201^{\circ}$  45+ " "

Last 5 mi  $200^{\circ}$  6 " "

Dist. C. M. to C. S. 105 (121) miles.

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Note. The record of the daily "runs" of the "Cluett" from her position off Devil's Thumb around to Cape Melville totals 128 miles.

That from off Thom Island to off Cape Melville totals only 54 miles



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